

Amendments to the Claims:

This listing of claims will replace all prior versions, and listing, of claims in the application:

1-131 (canceled).

132. (previously presented). A polarization converter for use with a light source the generates a light beam having at least two light components, comprising an optics array capable of separating said light beam into at least one light component polarized differently than another light component, wherein said one light component and said another light component are within a single light beam, and wherein said one light component has a different color than said another light component, and wherein said light source defines an initial étendue and said optics array has an étendue substantially greater than one times said initial étendue.

133. (previously presented). The converter of claim 132 wherein said light source defines an initial étendue and said optics array has an étendue no more than four times greater than said initial étendue.

134. (previously presented). The converter of claim 133 wherein said optics array has an étendue no more the 3.5 times greater than said initial étendue.

135. (previously presented). The converter of claim 133 wherein said optics array has an étendue no more than two times greater than said initial étendue.

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136. (previously presented). The converter of claim 132 wherein said optics array has at least one dichroic filter.

137-147 (canceled).

148. (previously presented). The converter of claim 132 wherein said light source produces light having three light components and said optics array separates said light so that two of said light components have the same polarization, which is different than the polarization of the third light component.

149. (previously presented). The converter of claim 148 wherein said three light components are blue, green and red and said blue component and said green component have the same polarization, which is different than the polarization of said red component.

150. (previously presented). The converter of claim 132 wherein said optics array separates said two light components so that one of said components has s-polarization and the other light component has p-polarization.

151-155 (canceled).

156 (previously presented). A projection display system using polarized light comprising:

- (a) a light source for generating a light beam having a least two light components, wherein said light components are polarized and at least one of said light components is polarized differently than another of said light components and said one of said light components has a color that is different than said another of said light components;
- (b) a projection system having plural polarizing beam splitters and dichroic filters therein, wherein each polarizing beam splitter and dichroic filter reflects at least one of said light components and transmits at least another of said light components and a plurality of LCD panels, and LCD panel generating a light-component-specific image associated with one of said light components; and
- (c) a projection lens for projecting an image combined from the light-component-specific images from the LCD's.

157. (previously presented). The system of claim 156 wherein said light source includes a lamp and a filter stack having a cholesteric color filter mechanism located between said lamp and said projection system for pre-filtering said light beam to transmit red p-polarized light, green s-polarized light and blue s-polarized light.

158. (previously presented). The system of claim 156 wherein said light source includes a polarization converter for pre-filtering said light beam.

159-161. (cancelled).

162. (Previously presented). The system of claim 158 wherein said light source includes a lamp for generating said light beam and a pre-filtering illumination mechanism located between said lamp and said projection system for pre-filtering said light beam to provide a red p-polarized light component to said projection system, wherein said pre-filtering illuminating mechanism includes:

a red-transmitting dichroic filter, a pair of polarizing beam splitters, a pair of light absorbing stops, a half-wave plate, and a red-reflecting dichroic filter;

wherein said light beam impinges said red-transmitting dichroic filter, wherein said light beam is split into a reflected red light component and transmitted green light and blue light components; said reflected green and blue light components impinge on a polarizing beam splitter, which reflects a green s-polarized light component and said blue light component, wherein said green s-polarized light component and said blue light component impinge said red-reflecting dichroic filter, which transmits said green s-polarized light component and a blue s-polarized light component to said projection system; and

wherein said reflected red light component impinges another polarizing beam splitter, which transmits a red s-polarized light component through said half-wave plate, which changes said red s-polarized light component to a red p-polarized light component, which red p-polarized light component impinges said red-reflecting dichroic filter and is reflected to said projection system.

163. (previously presented). A projection display system using polarized light comprising:

- (a) a light source for generating a light beam having at least three light components, wherein one of said light components is p-polarized and two of said light components are s-polarized;
- (b) a projection system having plural polarizing beam splitters and dichroic filters therein, wherein each polarizing beam splitter and dichroic filter reflects one of said light components and transmits another of said light components and LCD panels, each LCD panel generating a light-component-specific image associated with each light component, wherein said polarizing beam splitters and said dichroic filters are arranged in a substantially x-shaped configuration, wherein said dichroic filters are normal to said polarizing beam splitters and arranged to intersect adjacent an edge thereof; and
- (c) a projection lens for projecting an image combined from the light-component-specific images from the LCDs.

164. (previously presented). The system of claim 163 wherein said light source includes a lamp and a filter stack having a cholesteric color filter mechanism located between said lamp and said projection system for pre-filtering said light beam.

165. (previously presented). The system of claim 163 wherein said light source includes a polarization converter for pre-filtering said light beam.

166. (previously presented). The system of claim 163 wherein said light beam from said light source impinges on a blue-transmitting dichroic filter at substantially 45 degrees, then impinges on a polarizing beam splitter at substantially 45 degrees, then impinges on an LCD panel having said light-component-specific image displayed thereon, substantially normal thereto, and is reflected therefrom carrying a color image component, then impinges a polarizing beam splitter at substantially 45 degrees, then impinges a blue-reflecting dichroic filter at substantially 45 degrees prior to transmitting said projection lens.

167. (previously presented). The system of claim 163 wherein said light beam from said light source impinges on a blue-transmitting dichroic filter at substantially 45 degrees, then impinges on a polarizing beam splitter at substantially 45 degrees, then impinges on an LCD panel having said light-component-specific image displayed thereon, substantially normal thereto, and is reflected therefrom carrying a color image component, then impinges a polarizing beam splitter at substantially 45 degrees, then impinges a blue-reflecting dichroic filter at substantially 45 degrees prior to transmitting said projection lens.

168. (previously presented). The system of claim 163 wherein said light source includes a lamp for generating said light beam and a pre-filtering illumination mechanism located between said lamp and said projection system from pre-filtering said light beam to provide a red p-polarized light component, a green s-polarized light component and a blue s-polarized light component to said projection system, wherein said pre-filtering illumination mechanism includes:
a red-transmitting dichroic filter, a pair of polarizing beam splitters, a pair of light absorbing stops, a half-wave plate, and a red-reflecting dichroic filter;

wherein said light beam impinges said red-transmitting dichroic filter, wherein said light beam is split into a reflected red light component and transmitted green light and blue light components; said reflected green and blue light components impinge on a polarizing beam splitter, which reflects a green s-polarized light component and said blue light component, wherein said green s-polarized light component and said blue light component impinge said red-reflecting dichroic filter, which transmits said green s- polarized light component and a blue s-polarized light component to said projection system; and

wherein said reflected red light component impinges another polarizing beam splitter, which transmits a red s-polarized light component through said half-wave plate, which changes said red s-polarized light component to a red p-polarized light component, which red p-polarized light component impinges said red-reflecting dichroic filter and is reflected to said projection system.

169. (previously presented). A projection display system using polarized light, comprising:

- (a) a light source for generating a light beam having at least two light components, wherein said light components are polarized and at least one of said light components is polarized differently than another of said light components and said one of said light components has a color that is different than said another of said light components;
- (b) a projection system having a plurality of polarized light modulators, each modulator generating a light-component-specific image associated with one of said light components; and

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- (c) a projection lens for projecting an image combined from the light-component-specific images from said modulators.

170. (previously presented). The system of claim 169 wherein said light source includes a lamp and a filter stack having a cholesteric color filter mechanism located between said lamp and said projection system for pre-filtering said light beam to transmit red p-polarized light, green s-polarized light and blue s-polarized light.

171. (previously presented). The system of claim 169 wherein said light source includes a polarization converter.

172. (canceled).

173. (previously presented). The system of claim 171 wherein said light source has a lamp defining an initial étendue, and said polarization converter has an étendue no greater than twice said initial étendue.

174-177.(canceled).

178. (previously presented). The system of claim 171 wherein said light source produces light having three light components and said polarization converter separates said light so that two of said light components have the same polarization, which is different than the polarization of the third light component.

179. (previously presented). The system of claim 178 wherein said three light components are blue, green and red and said blue component and said green component have the same polarization, which is different than the polarization of said red component.

180. (previously presented). The system of claim 171 wherein said polarization converter separates said two light components so that one of said light components has s-polarization and another of said light components has p-polarization.

181. (previously presented). A projection display system using polarized light comprising:

- (a) a polarization converter for use with a light source that provides a light beam having a least two components where at least one light component is polarized differently than another light component, wherein said one light component and said another light component are within a single said light beam, and wherein said one light component has a different color than said another light component;
- (b) a projection system that receives said differently polarized light and provides light-component-specific images; and
- (c) a projection lens that projects an image combined from the light-component-specific images.

182. (previously presented). The system of claim 181 wherein said light source defines an initial étendue and said polarization converter has an étendue no more than four times greater than said initial étendue.

183. (previously presented). The system of claim 182 wherein said polarization converter has an étendue no more than 3.5 times greater than said initial étendue.

184. (previously presented). The system of claim 182 wherein said polarization converter has an étendue no more than two times greater than said initial étendue.

185. (previously presented). The system of claim 181 wherein said polarization converter has at least one dichroic filter.

186-196. (canceled).

197. (previously presented). The system of claim 181 wherein said light source produces light having three light components and said polarization converter separates said light so that two of said light components have the same polarization, which is different than the polarization of the third light component.

198. (previously presented). The system of claim 197 wherein said three light components are blue, green, and red and said blue component and said green component have the same polarization, which is different than the polarization of said red component.

199. (previously presented). The system of claim 181 wherein said polarization converter separates said two light components so that one of said components has s-polarization and the other light component has p-polarization.

200-204. (canceled).

205. (previously presented). A projection display system using polarized light comprising:

- (a) a light source for generating a generally white light beam having at least two light components, wherein said light components are polarized and at least one of said light components is polarized differently than another of said light components, and said at least two components are provided to a projection system as a single beam, wherein the one light component and the other light component are within a single light beam, and said one light component has a different color than said other light component;
- (b) said projection system having plural polarizing beam splitters and dichroic filters therein, wherein each polarizing beam splitter and dichroic filter reflects at least one of said light components and transmits at least another of said light components and a plurality of LCD panels, each LCD panel generating a light-component-specific image associated with one of said light components; and

- (c) a projection lens for projecting an image combined from the light-component-specific images from the LCDs.

206. (previously presented). The system of claim 205 wherein said light source includes a lamp and a filter stack having a cholesteric color filter mechanism located between said lamp and said projection system for pre-filtering and light beam to transmit red p-polarized light, green s-polarized light and blue s-polarized light.

207. (previously presented). The system of claim 205 wherein said light source includes a polarization converter for pre-filtering said light beam.

208-210. (canceled)

211. (previously presented). The system of claim 205 wherein said light source includes a lamp for generating said light beam and a pre-filtering illumination mechanism located between said lamp and said projection system for pre-filtering and said light beam to provide a red p-polarized light component to said projection system, wherein said pre-filtering illuminating mechanism includes:

a red-transmitting dichroic filter, a pair of polarizing beam splitters, a pair of light absorbing stops, a half-wave plate, and red-reflecting dichroic filter;

wherein said light beam impinges on red-transmitting dichroic filter, wherein said light beam is split into a reflected red light component and transmitted green light and blue light components; said reflected green and blue light components impinge on a polarizing beam

splitter, which reflects a green s-polarized light component and said blue light component, wherein said green s-polarized light component and said blue light component impinge said red-reflecting dichroic filter, which transmits said green s-polarized light component and a blue s-polarized light component to said projection system; and

wherein said reflected red light component impinges another polarizing beam splitter, which transmits a red-s-polarized light component through said half-wave plate, which changes said red s-polarized light component to a red p-polarized light component, which red p-polarized light component impinges said red-reflecting dichroic filter and is reflected to said projection system.

212. (previously presented). A projection display system using polarized light comprising:

- (a) a light source for generating a light beam having at least three light components, wherein one of said light components is s-polarized and two of said light components are p-polarized.
- (b) a projection system having plural polarizing beam splitters and dichroic filters therein, wherein each polarizing beam splitter and dichroic filter reflects one of said light components and transmits another of said light components and LCD panels, each LCD panel generating a light-component-specific image associated with each light component, wherein said polarizing beam splitters and said dichroic filters are arranged in a substantially X-shaped configuration, wherein said dichroic filters are

normal to said polarizing beam splitters and arranged to intersect adjacent an edge thereof; and

- (c) a projection lens for projecting an image combined from the light-component-specific images from the LCDs.

213. (previously presented). The system of claim 212 wherein said light source includes a lamp and a filter stack having a cholesteric color filter mechanism located between said lamp and said projection system for pre-filtering said light beam.

214. (previously presented). The system of claim 212 wherein said light source includes a polarization converter for pre-filtering said light beam.

215. (previously presented). The system of claim 212 wherein said light beam from said light source impinges on a blue-transmitting dichroic filter at substantially 45 degrees, then impinges on a polarizing beam splitter at substantially 45 degrees, then impinges on an LCD panel having said light-component-specific image displayed thereon, substantially normal thereto, and is reflected therefrom carrying a color image component, then impinges a polarizing beam splitter at substantially 45 degrees, then impinges a blue-reflecting dichroic filter at substantially 45 degrees prior to transmitting said projection lens.

216. (previously presented). The system of claim 212 wherein said light beam from said light source impinges on a blue-transmitting dichroic filter at substantially 45 degrees, then impinges on a polarizing beam splitter at substantially 45 degrees, then impinges on an LCD

panel having said light-component-specific image displayed thereon, substantially normal thereto, and is reflected therefrom carrying a color image component, then impinges a polarizing beam splitter at substantially 45 degrees, then impinges a blue-reflecting dichroic filter at substantially 45 degrees prior to transmitting said projection lens.

217. (previously presented). A projection display system using polarized light, comprising:

- (a) a light source for generating a generally white light beam having at least two light components, wherein said light components are polarized and at least one of said light components is polarized differently than another of said light components, and said at least two light components are provided to a projection system as a single beam;
- (b) said projection system having a plurality of polarized light modulators, each modulator generating a light-component-specific image associated with one of said light components; and
- (c) a projection lens for projecting an image combined from the light-component-specific images from said modulators.

218. (previously presented). The system of claim 217 wherein said light source includes a lamp and filter stack having a cholesteric color filter mechanism located between said lamp and said projection system for pre-filtering said light beam to transmit red p-polarized light, green s-polarized light and blue s-polarized light.

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219. (previously presented). The system of claim 217 wherein said light source includes a polarization converter.

220. (canceled).

221. (previously presented). The system of claim 219 wherein said light source has a lamp defining an initial étendue, and said polarization converter has an étendue no greater than twice said initial étendue.

222. (canceled).

223. (previously presented). The system of claim 219 wherein said polarization converter includes two polarizing beam splitters.

224. (canceled).

225. (previously presented). The system of claim ~~222~~ 217 wherein said polarization converter further includes at least two polarizing beam splitter.

226. (previously presented). The system of claim 219 wherein said light source produces light having three light components and said polarization converter separates said light so that two of said light components have the same polarization, which is different than the polarization of the third light component.

227. (previously presented). The system of claim 226 wherein said three light components are blue, green and red and said blue component and said green component have the same polarization, which is different than the polarization of said red component.

228. (previously presented). The system of claim 219 wherein said polarization converter separates said two light components so that one of said light components has s-polarization and another of said light components has p-polarization.

229-241. (canceled).

242. (previously presented). A projection display system using polarized light comprising:

- (a) a light source for generating a light beam having at least two light components, wherein said light components are polarized and at least one of said light components is polarized differently than another of said light components;
- (b) a projection system having plural polarizing beam splitters and dichroic filters therein, wherein each polarizing beam splitter and dichroic filter reflects at least one of said light components and transmits at least another of said light components and a plurality of LCD panels, each LCD panel generating a light-component-specific image associated with one of said light components;

- (c) a projection lens for projecting an image combined from the light-component-specific images from the LCDs; and
- (d) wherein said light source includes a lamp and a filter stack having a cholesteric color filter mechanism located between said lamp and said projection system for pre-filtering said light beam to transmit red p-polarized light, green s-polarized light and blue s-polarized light.

243-245. (canceled).

246. (previously presented). A projection display system using polarized light comprising:

- (a) a light source for generating a light beam having at least two light components, wherein said light components are polarized and at least one of said light components is polarized differently than another of said light components;
- (b) a projection system having plural polarizing beam splitters and dichroic filters therein, wherein each polarizing beam splitter and dichroic filter reflects at least one of said light components and transmits at least another of said light components and a plurality of LCD panels, each LCD panel generating a light-component-specific image associated with one of said light components;
- (c) a projection lens for projecting an image combined from the light-component-specific images from the LCDs; and

(d) wherein said light source includes a lamp for generating said light beam and a pre-filtering illumination mechanism located between said lamp and said projection system for pre-filtering said light beam to provide a red p-polarized light component to said projection system, wherein said pre-filtering illuminating mechanism includes:

a red-transmitting dichroic filter, a pair of polarizing beam splitters, a pair of light absorbing stops, a half-wave plate, and a red-reflecting dichroic filter;

wherein said light beam impinges said red-transmitting dichroic filter, wherein said light beam is split into a reflected red light component and transmitted green light and blue light components; said reflected green and blue light components impinge on a polarizing beam splitter, which reflects a green s-polarized light component and said blue light component, wherein said green s-polarized light component and said blue light component impinge said red-reflecting dichroic filter, which transmits said green s-polarized light component and a blue s-polarized light component to said projection system; and

wherein said reflected red light component impinges another polarizing beam splitter, which transmits a red s-polarized light component through said half-wave plate, which changes said red s-polarized light component to a red p-polarized light component, which red p-polarized light component impinges said red-reflecting dichroic filter and is reflected to said projection system.

247. (previously presented). A projection display system using polarized light, comprising:

- (a) a light source for generating a light beam having at least two light components, wherein said light components are polarized and at least one of said light components is polarized differently than another of said light components;
- (b) a projection system having a plurality of polarized light modulators, each modulator generating a light-component-specific image associated with one of said light components;
- (c) a projection lens for projecting an image combined from the light-component-specific images from said modulators; and
- (d) wherein said light source includes a lamp and a filter stack having a cholesteric color filter mechanism located between said lamp and said projection system for pre-filtering said light beam to transmit red p-polarized light, green s-polarized light and blue s-polarized light.

248. (previously presented). A projection display system using polarized light, comprising:

- (a) a light source for generating a light beam having at least two light components, wherein said light components are polarized and at least one of said light components is polarized differently than another of said light components;
- (b) a projection system having a plurality of polarized light modulators, each modulator generating a light-component-specific image associated with one of said light components;

- (c) a projection lens for projecting an image combined from the light-component-specific images from said modulators; and
- (d) wherein said light source includes a polarization converter, and wherein said polarization converter has a first dichroic filter and a second filter complimentary to said first dichroic filter, and wherein each dichroic filter is sandwiched between two quarter waveplates.

249. (previously presented). A polarization converter for use with a light source that generates a light beam having at least two light components, comprising an optics array capable of separating said light beam into at least one light component polarized differently than another light component wherein said one light component and another light component are within a single light beam, and wherein said one light component has a different color than said another light component, and wherein said light source defines an initial étendue and said optics array has an étendue of no more than four times greater than said initial étendue.

250. (previously presented). The converter of claim 249 wherein said optics array has an étendue no more than 3.5 times greater than said initial étendue.

251. (previously presented). The converter of claim 249 wherein said optics array has an étendue no more than two times greater than said initial étendue.

252-261. (canceled).

262. (previously presented). A method of converting light comprising:
- (a) producing a light beam that is nonpolarized and has at least two light components;
 - (b) separating said light beam into at least one light component polarized differently than another light component, said one light component having a color that is different than said another light component, wherein substantially all of said light beam is transmitted; and
 - (c) wherein said light beam is first separated into a first polarized component having a first polarization and a second polarized component having a second polarization; and wherein the first polarized component is separated into a first light component and a second light component and the polarization of said first light component is changed; and wherein said second polarized component is separated spectrally into said first light component and said second light component and the polarization of said second light component is changed, so that said first light component has said second polarization, and said second light component has said first polarization.